

-continued

( i i ) MOLECULE TYPE: cDNA

( i i i ) HYPOTHETICAL: NO

( i v ) ANTI-SENSE: NO

( x i ) SEQUENCE DESCRIPTION: SEQ ID NO:18:

TGATGGCATG GACTGTGGTC ATGA

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( 2 ) INFORMATION FOR SEQ ID NO:19:

( i ) SEQUENCE CHARACTERISTICS:

- ( A ) LENGTH: 24 base pairs
- ( B ) TYPE: nucleic acid
- ( C ) STRANDEDNESS: single
- ( D ) TOPOLOGY: linear

( i i ) MOLECULE TYPE: cDNA

( i i i ) HYPOTHETICAL: NO

( i v ) ANTI-SENSE: NO

( x i ) SEQUENCE DESCRIPTION: SEQ ID NO:19:

TGATGGCATG GACTGTGGTC ATGA

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What is claimed is:

1. An isolated DNA molecule comprising a nucleotide sequence that encodes a mammalian Gax protein, said nucleotide sequence selected from the group consisting of a nucleotide sequence encoding a protein having the amino acid sequence of SEQ ID NO:2 and a nucleotide sequence encoding a protein having the amino acid sequence of SEQ ID NO:4.

2. The DNA molecule of claim 1, comprising the nucleotide sequence as shown in (FIG. 1) *Sequence Identifier No. 1.*

3. The DNA molecule of claim 1, comprising the nucleotide sequence as shown in (FIG. 3) *Sequence Identifier No. 3.*

4. The DNA molecule of claim 1, comprising the nucleotide sequence encoding a protein having an amino acid sequence as shown in Sequence Identifier No. 2.

5. The DNA molecule of claim 1, comprising a nucleotide sequence having a region which consists of the nucleotide bases from about 749 to about 919 as shown in Sequence Identifier No. 1.

6. The messenger RNA transcript of the DNA of claim 1. 50  
7. A vector containing the DNA mol of claim 1.

8. A vector containing the DNA molecule of claim 2.

9. A vector containing the DNA molecule of claim 3.

10. A vector containing the DNA molecule of claim 4.

11. A vector containing the DNA molecule of claim 5.

12. A host cell transformed by the vector of claim 7 containing a DNA molecule having the nucleotide sequence coding for Gax protein.

13. A host cell transformed by the vector of claim 8 containing a DNA molecule having the nucleotide sequence coding for Gax protein.

14. A host cell transformed by the vector of claim 9 containing a DNA molecule having the nucleotide sequence coding for Gax protein.

15. A host cell transformed by the vector of claim 10 containing a DNA molecule having the nucleotide sequence encoding the Gax protein.

16. A host cell transformed by the vector of claim 11 containing a DNA molecule having the nucleotide sequence encoding the Gax protein.

17. A process for the preparation of Gax protein comprising culturing the transformed host of claim 12 under conditions suitable for the expression of Gax protein and recovering the Gax protein.

18. A process for the preparation of a protein which inhibits the proliferation of vascular smooth muscle cells comprising culturing the transformed host of claim 13 under conditions suitable for the expression of the protein and recovering the protein.

19. A process for the preparation of a protein which inhibits the proliferation of vascular smooth muscle cells comprising culturing the transformed host of claim 14 under conditions suitable for the expression of the protein and recovering the protein.

20. A process for the preparation of a protein which inhibits the proliferation of vascular smooth muscle cells comprising culturing the transformed host of claim 15 under conditions suitable for the expression of the protein and recovering the protein.

21. The DNA molecule of claim 1, comprising the nucleotide sequence encoding a protein having an amino acid sequence as shown in Sequence Identifier No. 4.

22. A vector containing the DNA molecule of claim 21.

23. A host cell transformed by the vector of claim 22 containing a DNA molecule having the nucleotide sequence encoding the Gax protein.

24. A process for the preparation of a protein which inhibits the proliferation of vascular smooth muscle cell comprising culturing the transformed host of claim 23 under conditions suitable for the expression of the protein and recovering the protein.

25. The isolated DNA molecule of claim 1 wherein the protein is a human Gax protein.

26. The isolated DNA molecule of claim 1 wherein the protein is a rat Gax protein.

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27. An isolated DNA molecule comprising a nucleotide sequence encoding a human Gax protein that inhibits proliferation of vascular smooth muscle cells, said nucleotide sequence being 941 nucleotides in length, wherein said nucleotide sequence starting at the 3' end comprises the following fragments:

(a) a fragment of clone 6 comprising nucleotides 699 to 941 of said nucleotide sequence;

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- (b) a fragment of clone 23 comprising nucleotides 231 to 698 of said nucleotide sequence;
- (c) a fragment of clone 117 comprising nucleotides 119 to 230 of said nucleotide sequence;
- (d) a fragment of clone 131 comprising nucleotides 1 to 118 of said nucleotide sequence.

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